REMARKS

Reconsideration of this application, as amended, is respectfully requested. By this Amendment, claims 1, 10, 14, 15 and 17-34 are being canceled, claims 2, 3, 8, 9, 11, 13 and 16 are being amended, and new claims 35-41 are being added to more particularly point out and distinctly claim the subject invention. The addition of "new matter" has been scrupulously avoided. Claims 2-6, 8, 9, 11-13, 16 and 35-41 remain in this application.

In response to the Restriction Requirement, Applicant hereby confirms the election of invention I comprising original claims 1-17 and new claims 35-41. All claims to the non-elected invention have been canceled.

Previously presented claims 1-6, 8, 10-11 and 16-17 were rejected under 35 U.S.C. 103(a) as allegedly obvious over Calame et al. (U.S. Patent No. 6,360,598); claim 9 was rejected on the same grounds, further in view of Kaneko et al. (U.S. Patent No. 6,186,000); claim 12 was rejected on the same grounds as claim 1, further in view of Franks (U.S. Patent No. 4,858,621); and claims 13-15 were rejected on the same grounds as claim 1, further in view of Sol (U.S. Patent No. 6,231,527).

These rejections, to the extent that they may be considered applicable to the claims as now presented, are respectfully, but most strenuously traversed.

As now defined by independent claim 35, the present invention is directed to a method for simultaneously visualizing both distributed horizontal shear force and distributed vertical pressure acting on a skin surface. The distributed shear force and pressure are sensed at distributed points along the skin surface by an array of sensors. The method comprises the steps of:

> displaying an image of a flat rectangular grid representing a plane where the skin surface meets the array of sensors; deforming line intersections of the grid in the image only sideways in a plane of the grid in accordance with the distributed shear force sensed by the array of sensors; and using color mapping to display, along with the image, distributed vertical pressure sensed by the array of sensors, whereby the distributed horizontal shear force and the distributed vertical pressure acting on the skin surface at the distributed points are displayed concurrently and differentiably.

The primary reference to Calame et al. fails to teach, disclose or suggest the visualizing method of independent claim 35. Calame does not disclose anything new about **visualization** of pressure or shear, but rather focuses on simultaneous sensing of **total** shear forces (X, Y) with **distributed** pressure. Calame teaches to use a force plate, capable only of total force measurement in each direction, in conjunction with a distributed array of pressure sensors. Calame does not measure shear at distributed points along the skin surface, but only total shear force at two different feet. Further, none of the visualizations shown in Calame's figures or described in the text relate to visualization of distributed shear force. In fact, Calame, in column 2, lines 53-59 specifically describes Figures 2 and 3 as showing the "pressure distribution" -- this means that it does not show shear.

There is no teaching in this reference of deforming a rectangular grid only sideways in the plane of the grid to represent distributed horizontal shear force, nor of concurrently and differentiably displaying both distributed horizontal shear force and vertical pressure.

Applicants' have discovered that deforming a rectangular grid to display both horizontal shear and vertical pressure is confusing, and have determined that an optimal approach for simultaneously displaying distributed vertical pressure and horizontal shear force is to deform a rectangular grid in the plane of the grid in accordance with sensed distributed shear force and simultaneously color mapping sensed distributed vertical pressure.

The novelty and innovativeness of Applicants' approach for visualization of distributed horizontal shear force by in-plane deformation of a rectangular grid in combination with color mapping of distributed vertical pressure, has been recognized by the award of a Small Business Innovation Research (SBIR) Grant for this project by the National Institute of Diabetes and Digestive and Kidney Diseases of the National Institutes of Health. Documentation of this award is attached.

Applicants respectfully submit that the primary reference does not teach or fairly suggest the method of independent claim 35, nor achieve the benefits of this method which have been independently recognized by the SBIR award.

Calame fails to teach: distributed sensing of horizontal shear force along a skin surface, such as a foot; deformation of line intersections of a rectangular grid only sideways in the plane of the grid to represent distributed horizontal shear force; the problems associated with displaying both distributed horizontal shear force and distributed vertical pressure through grid

deformation; and optimization of a concurrent display of these forces by superimposing an image of the horizontally deformed rectangular grid with color mapping of vertical pressure.

The secondary references fail to overcome the above-described basic deficiencies of the primary reference.

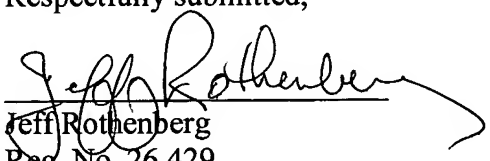
The dependent claims are allowable for the same reasons as independent claim 35 from which they all ultimately depend, as well as for their additional limitations. For example, the specific limitations of claims 11, 13 and 36-41 are conspicuously absent from the applied prior art.

For instance, in both Calame et al. and Sol, vertical pressure is color mapped. However, neither of these references teaches determining a location of maximum value of distributed horizontal shear force, skin bunching, skin stretching and/or skin twisting and highlighting said location in the presented image. Certainly there is no teaching of computing an index for at least one of skin bunching, skin stretching and skin twisting and identifying a location in the image where this index is a maximum.

For all of the above reasons, the claims remaining in this application are believed to be in condition for allowance and such action is respectfully requested.

If it would advance the prosecution of this application, the Examiner is cordially invited to contact Applicants' representative at the below indicated telephone number.

Respectfully submitted,



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